SINF1151 Problem solving using computers

[+60h exercises] 7 credits

Teacher(s): Kim Mens
Language: French
Level: First cycle

Aims

The goal of this "laboratory" is to give students a first experience with developing an object-oriented program and giving them the occasion to construct a simple application from its specification until its implementation. More specifically, the goals of this laboratory are to :
- give a more precise idea of how computer science can be used as a vehicle to solve problems in an organisation;
- let the students experience a software development process which includes the analysis of a simple problem, the construction of a solution to that problem, and the implementation of this solution using a set of software development tools;
- make the students familiar with the use of web technology as a communication tool.

Main themes

- Analysis of a simple problem;
- Structuring a problem in terms of classes and methods;
- Implementing a simple application in an object-oriented programming language (Java);
- Using a programming environment : editor, compiler, debugger, file management system, test tools;
- Testing program exactness.

Content and teaching methods

The course is organized as a programming project to be conducted by small groups of students. Each group has to:
- analyze the problem;
- design the application to be implemented;
- implement the application (in Java);
- document the application (preconditions, postconditions, invariants, alternative solutions, used algorithms);
- test the application;
- write a report;
- give a demonstration of the final application.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

- Prerequisite:
SINF1150 - Introduction à l'algorithmique et à la programmation - B. Le Charlier.
- References :
(1) John Lewis and William Loftus, Java Software Solutions: Foundations of Program Design. Addison-Wesley, 2001

Other credits in programs

SINF11BA	Première année d'études de bachelier en sciences informatiques	(7 credits)	Mandatory
SINF12BA	Deuxième année d'études de bachelier en sciences informatiques	(7 credits)	